PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2021-07-05-03** **Date: 19-06-2021**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	"Patching Pot Holes in Various Roads of Sahakarnagara and Surrounding Areas in Ward No.08 Kodigehalli."
Agency	:	M/S Venkateshwara Constructions, Prop.P Venkataraju, S/o P Guruva Raju, No-57, 6th Cross, 6th Main Kodigehalli, Bangalore-92
Customer Reference	:	BBMP/EE/BTP/WO/161/2020-21
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	17-06-2021
Type of Mix	:	BC (Bituminous Concrete)
Date of Test	:	17-06-2021

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.

Note:-

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Kodigehalli Sub Division
BBMP, Bangalore

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Authorized Signatory
Quallity Manager

TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2021-07-05-03** **Date: 20-06-2021**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	"Patching Pot Holes in Various Roads of Sahakarnagara and Surrounding Areas in Ward No.08 Kodigehalli."
Agency	:	M/S Venkateshwara Constructions, Prop.P Venkataraju, S/o P Guruva Raju, No-57, 6th Cross, 6th Main Kodigehalli, Bangalore-92
Customer Reference	:	BBMP/EE/BTP/WO/161/2020-21
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	17-06-2021
Type of Mix	:	BC (Bituminous Concrete)
Date of Test	:	17-06-2021

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	–

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2021-07-05-03 **Date: 18-06-2021**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : "Patching Pot Holes in Various Roads of Sahakarnagara and Surrounding Areas in Ward No.08 Kodigehalli."

Agency : M/S Venkateshwara Constructions, Prop.P Venkataraju, S/o P Guruva Raju, No-57, 6th Cross, 6th Main Kodigehalli, Bangalore-92

Customer Reference : BBMP/EE/BTP/WO/161/2020-21

Source of Sample : Sample supplied by Agency

Date of Receipt : 17-06-2021

Type of Mix : BC (Bituminous Concrete)

Date of Test : 17-06-2021

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	469	470
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	6.20	6.00
4	Average percentage	%	6.1	

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Lab ID : **CP-RW-2021-07-05-03** **Date: 18-06-2021**

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 469

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.9	99.1	90-100
9.5	62	66	14.1	85.9	70-88
4.75	112	178	38.0	62.0	53-71
2.36	88	266	56.7	43.3	42-58
1.18	29	295	62.9	37.1	34-48
0.6	11	306	65.2	34.8	26-38
0.3	46	352	75.1	24.9	18-28
0.15	45	397	84.6	15.4	12-20
0.075	55	452	96.4	3.6	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 470

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.9	99.1	90-100
9.5	62	66	14.0	86.0	70-88
4.75	112	178	37.9	62.1	53-71
2.36	88	266	56.6	43.4	42-58
1.18	29	295	62.8	37.2	34-48
0.6	11	306	65.1	34.9	26-38
0.3	46	352	74.9	25.1	18-28
0.15	45	397	84.5	15.5	12-20
0.075	55	452	96.2	3.8	4-10

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : **CP-RW-2021-07-05-03** **Date: 18-06-2021**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : "Patching Pot Holes in Various Roads of Sahakarnagara and Surrounding Areas in Ward No.08 Kodigehalli."

Agency : M/S Venkateshwara Constructions, Prop.P Venkataraju, S/o P Guruva Raju, No-57, 6th Cross, 6th Main Kodigehalli, Bangalore-92

Customer Reference : BBMP/EE/BTP/WO/161/2020-21

Source of Sample : Sample supplied by Agency

Date of Receipt : 17-06-2021

Type of Mix : BC (Bituminous Concrete)

Date of Test : 17-06-2021

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	470	469
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	6.00	6.20
4	Average percentage	%	6.1	

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WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES

Lab ID : **CP-RW-2021-07-05-03** **Date: 18-06-2021**

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 470

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.9	99.1	90-100
9.5	62	66	14.0	86.0	70-88
4.75	112	178	37.9	62.1	53-71
2.36	88	266	56.6	43.4	42-58
1.18	29	295	62.8	37.2	34-48
0.6	11	306	65.1	34.9	26-38
0.3	46	352	74.9	25.1	18-28
0.15	45	397	84.5	15.5	12-20
0.075	55	452	96.2	3.8	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 469

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.9	99.1	90-100
9.5	62	66	14.1	85.9	70-88
4.75	112	178	38.0	62.0	53-71
2.36	88	266	56.7	43.3	42-58
1.18	29	295	62.9	37.1	34-48
0.6	11	306	65.2	34.8	26-38
0.3	46	352	75.1	24.9	18-28
0.15	45	397	84.6	15.4	12-20
0.075	55	452	96.4	3.6	4-10

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BBMP, Bangalore

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Quality Manager

End of Report*

TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : **CP-RW-2021-07-05-03** **Date: 20-06-2021**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : "Patching Pot Holes in Various Roads of Sahakarnagara and Surrounding Areas in Ward No.08 Kodigehalli."

Agency : M/S Venkateshwara Constructions, Prop.P Venkataraju, S/o P Guruva Raju, No-57, 6th Cross, 6th Main Kodigehalli, Bangalore-92

Customer Reference : BBMP/EE/BTP/WO/161/2020-21

Source of Sample : Sample supplied by Agency

Date of Receipt : 17-06-2021

Type of Mix : BC (Bituminous Concrete)

Date of Test : 17-06-2021

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	468	469
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	6.40	6.20
4	Average percentage	%	6.3	

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WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES

Lab ID : **CP-RW-2021-07-05-03** **Date: 20-06-2021**

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 468

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.9	99.1	90-100
9.5	62	66	14.1	85.9	70-88
4.75	112	178	38.0	62.0	53-71
2.36	88	266	56.8	43.2	42-58
1.18	29	295	63.0	37.0	34-48
0.6	11	306	65.4	34.6	26-38
0.3	46	352	75.2	24.8	18-28
0.15	45	397	84.8	15.2	12-20
0.075	55	452	96.6	3.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 469

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.9	99.1	90-100
9.5	62	66	14.1	85.9	70-88
4.75	112	178	38.0	62.0	53-71
2.36	88	266	56.7	43.3	42-58
1.18	29	295	62.9	37.1	34-48
0.6	11	306	65.2	34.8	26-38
0.3	46	352	75.1	24.9	18-28
0.15	45	397	84.6	15.4	12-20
0.075	55	452	96.4	3.6	4-10

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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID	:	**CP-RW-2021-07-05-03** **Date: 18-06-2021**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	"Patching Pot Holes in Various Roads of Sahakarnagara and Surrounding Areas in Ward No.08 Kodigehalli."
Agency	:	M/S Venkateshwara Constructions, Prop.P Venkataraju, S/o P Guruva Raju, No-57, 6th Cross, 6th Main Kodigehalli, Bangalore-92
Customer Reference	:	BBMP/EE/BTP/WO/161/2020-21
Sample Condition	:	Satisfactory
Date of Receipt	:	17-06-2021
Type of Mix	:	Tack coat
Date of Test	:	17-06-2021

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

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